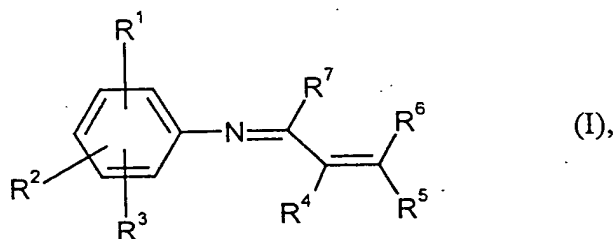


WHAT IS CLAIMED IS:

1. Anti-aging agents, based on organic compounds comprising azadiene groups of the general formula (I)

5



wherein

- 10  $R^1$  represents hydrogen, straight-chain or branched  $C_1$ - $C_{12}$ -alkyl,  $C_1$ - $C_{12}$ -alkoxy-,  $C_1$ - $C_{12}$ -alkylthio-,  $C_1$ - $C_{12}$ -alkylamino, di- $(C_1$ - $C_{12}$ -alkyl)-amino-,  $C_6$ - $C_{14}$ -aryl-,  $C_6$ - $C_{14}$ -aryloxy-,  $C_6$ - $C_{14}$ -arylthio-,  $C_6$ - $C_{14}$ -arylamino,  $C_2$ - $C_{12}$ -heteroaryl-,  $C_2$ - $C_{12}$ -heteroaryloxy-,  $C_2$ - $C_{12}$ -heteroarylthio-,  $C_2$ - $C_{12}$ -heteroaryl-amino,

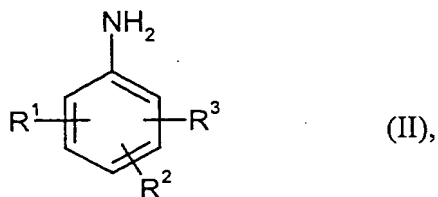
- 15  $R^2$  and  $R^3$  are the same or different and represent straight-chain or branched  $C_1$ - $C_{12}$ -alkyl,  $C_1$ - $C_{12}$ -alkoxy-,  $C_1$ - $C_{12}$ -alkylthio-,  $C_1$ - $C_{12}$ -alkyl-amino, di- $(C_1$ - $C_{12}$ -alkyl)-amino-, benzyl-, 1,1-dimethylbenzyl- or phenyl-,

- 20 or together form a 5-10-link aliphatic or aromatic, mono- or polynuclear ring system, which may optionally be interrupted once or more than once by heteroatoms selected from the group consisting of N, O and S,

- 25  $R^4$  to  $R^7$  are the same or different and represent hydrogen, straight-chain or branched  $C_1$ - $C_{12}$ -alkyl-,  $C_5$ - $C_{12}$ -cycloalkyl- or  $C_6$ - $C_{14}$ -aryl-, mono- or polyunsaturated, olefinic or acetylenic, straight-chain or branched  $C_2$ - $C_{12}$ -alkenyl-,  $C_2$ - $C_{12}$ -alkinyl- or  $C_5$ - $C_8$ -cycloalkenyl,

or together form a 5-8-link, aliphatic ring system, which may optionally be interrupted once or more than once by heteroatoms selected from the group consisting of N, O and S.

- 5     2.     Process for the production of the anti-aging agents according to Claim 1, comprising reacting substituted primary aromatic amines of the formula (II)



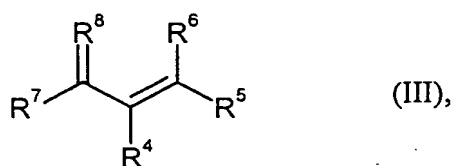
10

wherein,

15     R<sup>1</sup>     represents hydrogen, straight-chain or branched C<sub>1</sub>-C<sub>12</sub>-alkyl, C<sub>1</sub>-C<sub>12</sub>-alkoxy-, C<sub>1</sub>-C<sub>12</sub>-alkylthio-, C<sub>1</sub>-C<sub>12</sub>-alkylamino, di-(C<sub>1</sub>-C<sub>12</sub>-alkyl)-amino-, C<sub>6</sub>-C<sub>14</sub>-aryl-, C<sub>6</sub>-C<sub>14</sub>-aryloxy-, C<sub>6</sub>-C<sub>14</sub>-arylthio-, C<sub>6</sub>-C<sub>14</sub>-arylamino, C<sub>2</sub>-C<sub>12</sub>-heteroaryl-, C<sub>2</sub>-C<sub>12</sub>-heteroaryloxy-, C<sub>2</sub>-C<sub>12</sub>-heteroarylthio- and C<sub>2</sub>-C<sub>12</sub>-heteroarylamino,

20     R<sup>2</sup> and R<sup>3</sup> are the same or different and represent straight-chain or branched C<sub>1</sub>-C<sub>12</sub>-alkyl, C<sub>1</sub>-C<sub>12</sub>-alkoxy-, C<sub>1</sub>-C<sub>12</sub>-alkylthio-, C<sub>1</sub>-C<sub>12</sub>-alkyl-amino, di-(C<sub>1</sub>-C<sub>12</sub>-alkyl)-amino-, benzyl-, 1,1-dimethylbenzyl-, phenyl-,

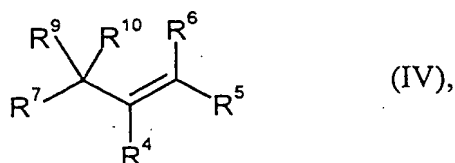
or together form a 5-10-link aliphatic or aromatic, mono- or polynuclear ring system, which may optionally be interrupted once or more than once by heteroatoms selected from the group consisting of N, O and S, with  
25     optionally substituted conjugated 1,3-enones and/or 1,3-enals of the formula (III)



wherein,  $\text{R}^4$  to  $\text{R}^7$  are the same or different and represent of hydrogen, straight-chain or branched  $\text{C}_1$ - $\text{C}_{12}$ -alkyl-,  $\text{C}_5$ - $\text{C}_{12}$ -cycloalkyl- or  $\text{C}_6$ - $\text{C}_{14}$ -aryl-,  
 5 mono- or polyunsaturated, olefinic or acetylenic, straight-chain or  
 branched  $\text{C}_2$ - $\text{C}_{12}$ -alkenyl-,  $\text{C}_2$ - $\text{C}_{12}$ -alkinyl- or  $\text{C}_5$ - $\text{C}_8$ -cycloakenyl,  
 or together form a 5-8-link, aliphatic ring system, which may optionally be  
 interrupted once or more than once by heteroatoms selected from the  
 group consisting of N, O and S.

10 and wherein  $\text{R}^8$  represents oxygen, sulfur and  $\text{NR}^4$  group

and/or their synthetic equivalents of the formula (IV)



15 wherein,

$\text{R}^9$  and  $\text{R}^{10}$  are the same or different and represent hydroxy, chloro, bromo,  
 straight-chain or branched  $\text{C}_1$ - $\text{C}_{12}$ -alkoxy,  $\text{C}_1$ - $\text{C}_{12}$ -alkylthio,  $\text{C}_1$ - $\text{C}_{12}$ -  
 alkylamino or together form a  $\text{C}_2$ - $\text{C}_{12}$ -alkanedioxy- or  $\text{C}_2$ - $\text{C}_{12}$ -  
 20 alkanediamino group.

3. A rubber vulcanizate produced with an anti-aging agent according to Claim 1.

4. A mixture comprising anti-aging agents according to Claim 1 and at least one additional anti-aging agent, wherein the mix ratio of anti-aging agents according to Claim 1 to at least one additional anti-aging agent is 10:1 to 1:10.
5. A rubber vulcanizate produced with an anti-agent mixture according to Claim 4.
6. A process for preparing a rubber mixture comprising mixing one or more rubber monomer with an anti-aging agent according to Claim 1.
7. The process according to Claim 6, further comprising adding a vulcanization agent.